UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,896	01/14/2000	Masahiko Yamada	Q56529	7640

7590 06/14/2005	EXAMINER
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ART UNIT	PAPER NUMBER
2623	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 February 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21 and 100-117* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21, 100-117* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's amendment filed 2/04/2005, has been entered and made of record.

1.   Applicant's amendments and arguments, see 6-13, filed 2/4/2005, with respect to the rejection(s)of claim(s) 1-21, 100-114 under 35 USC 102 and 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of new grounds of rejection.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-21, 100-107, 109, 110, 112 and 113, 115-117 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al (EP 0 766 202), hereinafter Ito 202.

Regarding Claim 1, Ito et al disclose an image processing method for obtaining a processed image from an original image signal representing an original image having a certain picture element density, in which a plurality of intermediate image signals which are different in frequency band are made on the basis of the original image signal

(Abstract; Figures 1, 2, 12, 13 and 43; Page 10, Lines 25-31), a plurality of transformed image signals are obtained by carrying out a transformation processing on the respective intermediate image signals on the basis of respective transformation functions (Abstract; Figures 1, 2, 12, 13 and 43; Page 10, Lines 31-35), and a processed image signal is obtained from the transformed image signals (Figures 12, 13 and 43, Signal Sporc), wherein the improvement comprises the steps of

defining said transformation functions by determining transformation functions defining parameters for the transformation functions on the basis of the picture element density of the original image (Abstract; Figures 1, 12 and 43, Conversion Means 3; Page 10, Lines 53-59, Page 11, Lines 1-19).

However, he fails to explicitly disclose the different parameters defined with different picture element densities, as claimed. But, it is obvious to have different picture element densities if different parameters are defined for different picture elements, because the parameters are defined as functions based on the picture element densities, because functions defining parameters for the transformation functions on the basis of both the picture element intensity (brightness resolution, i.e., pixel values) and picture element density (spatial resolution) of the original image (Figure 1, spatial and optical resolution transformation', Formulas 1-3., Page 2, Lines 37-59, Page 3, Lines 1-22, Formula 6, Figures 2- 4, Page 8, Lines 20-51 (Signals Bk in Figures 2 and 4 are derived from pixels density (spatial resolution) transformation; Page 10, Lines 53-59, Page 11 , Lines 1-19. Sproc or the signal obtained from the frequency emphasis

processing (transformed signal) is a function of Sorg Or original image signal that

indicates the image density as described in Page 3, Lines 8-22.).

Therefore, it would have been obvious to one ordinary skilled in the art at the time of

invention to consider the different picture elements densities for the different parameters

as the parameters are based on the picture element density.

Regarding Claim 2, Ito et al further disclose an image processing method as

defined in Claim 1 in which said plurality of intermediate image signals are band-limited

signals which are made by carrying out on the original signal a filtering processing by

use of filters whose coefficients of filter are determined on the basis of the picture

element density of the original image signal, thereby making a plurality of unsharp

image signals which are different in frequency response characteristic, and making a

plurality of band-limited signals representing the signals in the respective frequency

bands of the original image signal on the basis of the unsharp image signals and the

original image signal (Abstract; Figures 13-15; Page 10, Lines 41-59, Page 11, Lines 1-

36).

Regarding Claim 3, Ito et al further disclose an image processing method as

defined in Claim 1 in which said predetermined transformation functions are non-linear

functions (Figure 15; Page 10, Lines 53-59, Page 11, Line 1).

Regarding Claim 4, Ito et al further disclose an image processing method as

defined in Claim 1 in which said predetermined transformation processing is a

frequency enhancement processing (Figures 15 and 16; Page 11, Lines 20-48).

Regarding Claim 5, Ito et al further disclose an image processing method as defined in Claim 1 in which said predetermined transformation processing is a dynamic range compression processing (Figures 13 and 43; Page 19, Lines 33-59, Page 20, Lines 1-41).

Regarding Claim 6, the transformation function defining parameters determined for the original image signal will be inherently stored with the parameters related to the original image signal as an standard procedure implemented in data processing for further processing of the image data.

Regarding Claim 7, Ito et al further disclose an image processing method as defined in Claim 1 in which said step of defining said transformation functions by determining transformation function defining parameters for the transformation functions on the basis of the picture element density of the original image comprises the steps of preparing transformation function defining parameters for at least two reference picture element densities, comparing the picture element density of the original image with the reference picture element densities, and determining the transformation function defining parameters for one of the reference picture element densities closest to the picture element density of the original image as the transformation function defining parameters for the original image signal (Figures 15-27; Page 10, Lines 53-59, Page 11, Lines 1-19).

With regards to Claims 8 and 15, arguments analogous to those presented for Claim 1 are applicable to Claims 8 and 15.

With regards to Claims 9 and 16, arguments analogous to those presented for Claim 2 are applicable to Claims 9 and 16.

With regards to Claims 10 and 17, arguments analogous to those presented for Claim 3 are applicable to Claims 10 and 17.

With regards to Claims 11 and 18, arguments analogous to those presented for Claim 4 are applicable to Claims 11 and 18.

With regards to Claims 12 and 19, arguments analogous to those presented for Claim 5 are applicable to Claims 12 and 19.

With regards to Claims 13 and 20, arguments analogous to those presented for Claim 6 are applicable to Claims 13 and 20.

With regards to Claims 14 and 21, arguments analogous to those presented for Claim 7 are applicable to Claims 14 and 21.

Regarding Claim 100, Ito further discloses the image processing method of Claim 1, further comprising frequency enhancement processing means for enhancing a particular frequency component (Page 3, Lines 46-49).

Regarding Claim 101, Ito further discloses the image processing method of Claim 1, further comprising dynamic range compression processing for reducing the contrast of the high density range and/or low density range (Page 3, Lines 50-59, Page 4, Lines 1-11).

With regards to Claims 102 and 104, arguments analogous to those presented for Claim 100 are applicable to Claims 102 and 104.

With regards to Claims 103 and 105, arguments analogous to those presented for Claim 101 are applicable to Claims 103 and 105.

Regarding Claim 106, Ito further discloses the image processing method of Claim 1, wherein the picture element density of the original image is automatically obtained when the original image signal is processed (This is an inherent characteristic of digital image processing wherein the picture elements of the original image signal are obtained by image capturing means such as CCDs.).

Regarding Claim 107, Ito further discloses the image processing method of Claim 106, wherein the picture element density of the original image is a value of image resolution which represents the original image and sampling intervals for obtaining the original image signal (Figure 4; Page 8, Lines 35-51).

With regards to Claims 109 and 112, arguments analogous to those presented for Claim 106 are applicable to Claims 109 and 112.

With regards to Claims 110 and 113, arguments analogous to those presented for Claim 107 are applicable to Claims 110 and 113.

With regards to Claims 115-117, arguments analogous to those presented for Claim 1 are applicable to Claims 115-117.

2.   Claims 108, 111 and 114 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al (EP 0 766 202), hereinafter Ito 202, in view of Ito (U.S. 5,694,447), hereinafter Ito 447.

Regarding Claim 108, Ito 202 does not explicitly disclose the image processing method of Claim 106, wherein the picture element density of the original image is the read density at which a radiation image recorded on a stimulable phosphore sheet is read.

Ito 447, in the same field of endeavor of image processing for forming a plurality of unsharp image signals, which have different frequency characteristics, from an image signal, implements the methodology in radiation image recording wherein the picture element density of the original image is the read density at which a radiation image recorded on a stimulable phosphore sheet is read (Column 3, Lines 15-32).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Ito 202 invention according to the teachings of Ito 447 to implement the processing wherein the picture element density of the original image is obtained by reading the density at which a radiation image recorded on a stimulable phosphore sheet because it will encompass a vast range of the input images of and will increase the versatility of image processing system
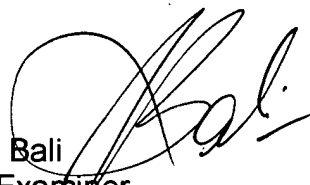
With regards to Claims 111 and 114, arguments analogous to those presented for Claim 108 are applicable to Claims 111 and 114.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vikkram Bali whose telephone number is 571.272.7415. The examiner can normally be reached on 7:00 AM - 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Amelia Au can be reached on 571.272.7414. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Vikkram Bali
Primary Examiner
Art Unit 2623

vb
June 8, 2005